



Physical Research Laboratory, Ahmedabad

Special Colloquium 20_12

- Speaker:** Prof. Alexander Tielens
Professor, Astronomy Department, Leiden University and University of Maryland
- Title:** "The Molecular Universe"
- Date and Time:** Wednesday, 02 December 2020, **10:00 AM - 11:00 AM**
- YouTube Link:** <https://www.youtube.com/watch?v=kldInaXvK1k>

Abstract

Over the last 20 years, we have discovered that we live in a molecular Universe: A Universe with a rich and varied organic inventory; A Universe where molecules are abundant and widespread; A Universe where molecules play a central role in key processes that dominate the structure and evolution of galaxies. A Universe where molecules provide convenient thermometers and barometers to probe local physical conditions. Understanding the origin and evolution of interstellar and circumstellar molecules is, therefore, key to understanding the Universe around us and our place in it and has therefore become a fundamental goal of modern astrophysics. The field is heavily driven by new observational tools that have become available over the last 20 years, in particular, space-based missions that have opened up the IR and sub-millimeter window at an ever-accelerating pace. These observations have revealed a rich and diverse molecular universe where many different processes drive molecular complexity. Our progress in understanding the Molecular Universe is greatly aided by close collaborations between astronomers, molecular physicists, astrochemists, spectroscopists, and physical chemists who work together in loosely organized networks. This talk will give a sketch of the progress that has been made over the last 20 years and outline some of the challenges that are facing us. The focus will be on understanding the unique and complex organic inventory of regions of star and planet formation that may well represent the prebiotic roots to life.

The Speaker

Prof. Alexander Tielens is a professor of Astronomy at both Leiden University and the University of Maryland. He has held appointments at the University of California in Berkeley, NASA Ames Research Center, the University of Groningen, and the Dutch Space Agency; was the project scientist of the HIFI instrument on board the Herschel Space Observatory; and was the NASA project scientist of the Stratospheric Observatory for Infrared Astronomy (SOFIA). He is a member of the Royal Netherlands Academy of Arts and Sciences and was awarded the Spinoza Prize in 2012.

ALL ARE WELCOME

